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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|----------------------------|-------------|----------------------|---------------------|------------------|
| 10/685,771 | 10/14/2003 | Dennis N. Bingham | B-311 | 6262 |
| 7590 | | 10/27/2005 | EXAMINER | |
| Stephen R. Christian | | VANOY, TIMOTHY C | | |
| BBWI | | ART UNIT | | |
| PO Box 1625 | | PAPER NUMBER | | |
| IDAHO FALLS, ID 83415-3899 | | 1754 | | |
| DATE MAILED: 10/27/2005 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/685,771

Applicant(s)

BINGHAM ET AL.

Examiner

Timothy C. Vanoy

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3-6, 8, 9, 12, 13, 16, 17 and 20 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 7, 10, 11, 14, 15, 18, 19, 21 and 22 is/are rejected.
- 7) ☒ Claim(s) 18 and 21 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>10/14/2003</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Specification

The abstract of the disclosure is objected to because it does not provide any examples of the "high pressure gas", "liquid" or "reactant composition". By providing examples, the reader of the abstract is able to ascertain the gist of the applicants' invention without having to search through the specification. Correction is required. See MPEP § 608.01(b).

Claim Objections

a) Claims 18 and 21 are objected to because they appear to use two different terms to describe the same feature. In claim 18, reference is made to a "fluid stream". In claim 21, reference is made to a "substantially inert carrier fluid". However, it appears that the "fluid stream" and the "substantially inert carrier fluid" are the same thing.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

a) Claims 7, 10, 14, 15, 18, 19, 21 and 22 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. It is critical or essential to the practice of the invention for either the specification of the claims to define the "inert fluid" of claim 7; the "second fluid stream" of claim 10; the "substantially inert fluid" of

Art Unit: 1754

claim 14; the "second fluid stream" of claim 15; the "fluid stream" of claims 18, 19 and 22; and the "substantially inert carrier fluid" of claim 21, but neither the specification or the claims provide any examples or definitions of these vague and indefinite terms. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

b) Claims 1, 10, 11 and 18 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. It is critical or essential to the practice of the invention for either claim 11 or the specification to explain how merely pumping a fluid to a container with the charging pump of claim 11 increases the pressure of the liquid within the container, but neither the claims or the specification describe how the provision of the charging pump (30) (which appears to only transport the liquid from the storage vessel (32) into the reaction container (11)) is able to raise the pressure of the liquid within the container (11), as required by applicants' claims 1, 10, 11 and 18. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 2, 10 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a) Neither the claims or the specification provide the metes and bounds of the indefinite term "high pressure" set forth in claims 1, 2, 10 and 18. What pressures are embraced and excluded by "high pressure"?

b) In claims 1, 10 and 18, it appears that the steps of supplying the container with a liquid and increasing the pressure of the liquid within the container are the same step in view of the limitations of claim 11 and the disclosure set forth on pg. 5 paragraph no. 0016 in the applicants' specification which teaches that the charging pump supplies the container with liquid *and* increases the liquid pressure within the container, however claims 1, 10 and 18 recite this as two distinct steps rather than the single step suggested on pg. 5 paragraph no. 0016 in the applicants' specification.

Claim Rejections - 35 USC § 102

Claim Rejections - 35 USC § 103

While U. S. Patent 2,534,533 in col. 4 ln. 1 to col. 5 ln. 17 describes the same base process for manufacturing hydrogen gas via the reaction between metal hydride and water (please see reaction (5) set forth in col. 4 in U. S. Patent 2,534,533) by supplying a container; adding water to the container and adding the metal hydride reactant to the water (please also see col. 5 lns. 14-16 in U. S. Patent 2,534,533) as embraced in the scope of at least all of the applicants' independent claims, none of the claims have been rejected under either 35USC102 or 35USC103 because all of the independent claims are limited to the step of increasing the pressure of the liquid within the container (applicants' claims 1 and 10) or increasing the pressure of the water in the container (applicants' claim 18), which distinguishes the claims from the generic process for manufacturing hydrogen gas via the reaction between metal hydride and water described in col. 4 ln. 1 to col. 5 ln. 17 in U. S. Patent 2,534,533.

Further, there is nothing in U. S. Patent 2,534,533 teaching or suggesting that the reactant should be rendered chemically non-reactive and that the non-reactive reactant is combined with a second fluid stream, as set forth in at least applicants' independent claim 10.

Further, there is nothing in U. S. Patent 2,534,533 teaching or suggesting that a fluid stream carrying the metal or metal hydride be metered into the container, as set forth in at least applicants' independent claim 18.

The following references, which are indicative of the state of the art, are made of record:

U. S. Patent Application Publication US 2004/0071630 A1 teaching a method for generating hydrogen by the reaction of borohydrides;

U. S. Patent 4,356,163 disclosing a process for producing hydrogen by combining an alkali metal with water;

U. S. Patent 4,064,226 disclosing a method for generating hydrogen by adding magnesium into an aqueous salt solution, and

U. S. Patent 1,889,714 disclosing the reaction between metals and water to produce hydrogen gas and metal hydroxide.

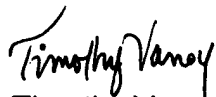
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy C. Vanoy whose telephone number is 571-272-8158. The examiner can normally be reached on Mon-Fri 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone

Art Unit: 1754

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Timothy Vandy
Patent Examiner
Art Unit 1754